



## **SMT power inductors**

Size  $12.95 \times 9.4 \times 5.08$  (mm)

**Series/Type:**            **B82476A1**  
**Date:**                     March 2008

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SMD

Rated inductance 1  $\mu\text{H}$  to 1000  $\mu\text{H}$   
Rated current 0.3 A to 6.8 A



**Construction**

- Ferrite core
- Winding: enamel copper wire
- Winding soldered to terminals
- Plastic terminal carrier

**Features**

- Temperature range up to 150 °C
- High rated current
- Low DC resistance
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020C
- Qualification based on AEC-Q200
- RoHS-compatible

**Applications**

- Filtering of supply voltages
- Coupling, decoupling
- DC/DC converters
- Automotive electronics
- Industrial electronics
- Consumer electronics

**Terminals**

- Base material CuSn6P
- Schichtaufbau Ni, Sn (lead-free)
- Electro-plated

**Marking**

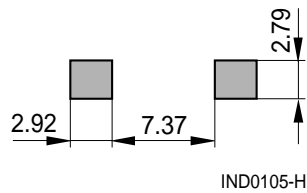
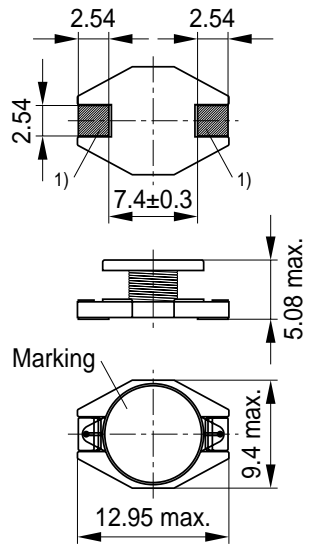
- Marking on component:  
Manufacturer, L value ( $\mu\text{H}$ , coded),  
manufacturing date (YWWDD)
- Minimum marking on reel:  
Manufacturer, ordering code, L value,  
quantity, date of packing

**Delivery mode and packing unit**

- 24-mm blister tape, wound on 330-mm  $\varnothing$  reel
- Packing unit: 750 pcs./reel

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**Dimensional drawing and layout recommendation**



Dimensions in mm

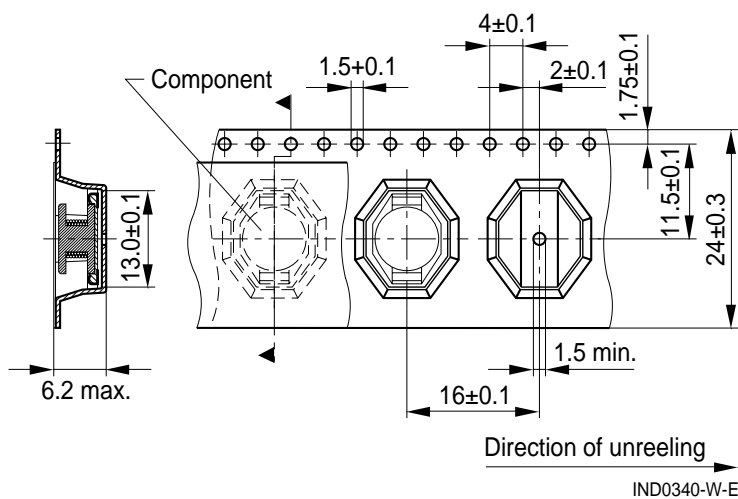
Component tolerances ±0.2 mm unless otherwise noted.

1) Soldering area

IND0489-B-E

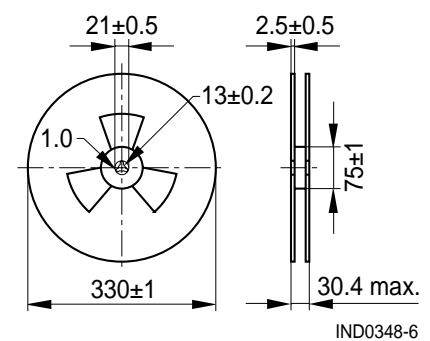
**Taping and packing**

Blister tape



IND0340-W-E

Reel



IND0348-6

Dimensions in mm

**Technical data and measuring conditions**

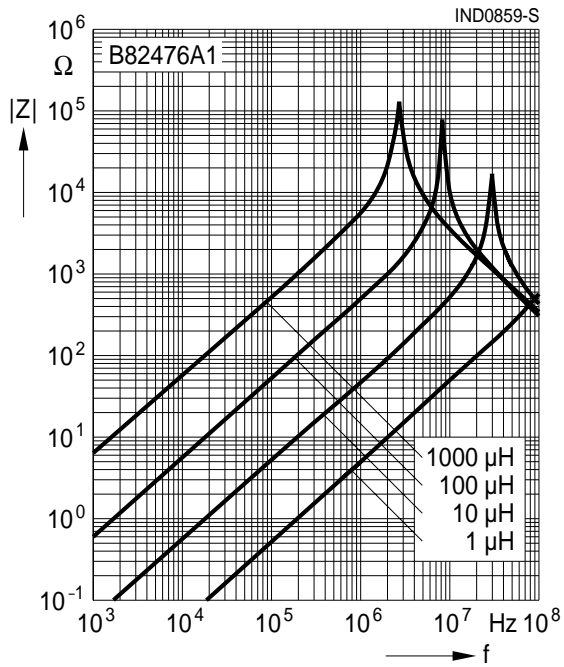
|                              |   |
|------------------------------|---|
| Rated inductance $L_R$       | Measured with LCR meter Agilent 4284A at frequency $f_L$ , 0.1 V, 20 °C   |
| Rated temperature $T_R$      | 85 °C   |
| Rated current $I_R$          | Max. permissible DC with temperature increase of $\leq 40$ K at rated temperature   |
| Saturation current $I_{sat}$ | Max. permissible DC with inductance decrease $\Delta L/L_0$ of approx. 10%  |
| DC resistance $R_{max}$      | Measured at 20 °C   |
| Solderability (lead-free)    | Dip and look method Sn95.5Ag3.8Cu0.7: (245 $\pm$ 5) °C, (5 $\pm$ 0.3) s<br>Wetting of soldering area $\geq 90\%$<br>(based on IEC 60068-2-58) |
| Resistance to soldering heat | 260 °C, 40 s (as referenced in JEDEC J-STD 020C)  |
| Climatic category            | 55/150/56 (to IEC 60068-1)  |
| Storage conditions           | Mounted: -55 °C ... +150 °C<br>Packaged: -25 °C ... +40 °C, $\leq 75\%$ RH  |
| Weight                       | Approx. 2 g   |

**Characteristics and ordering codes**

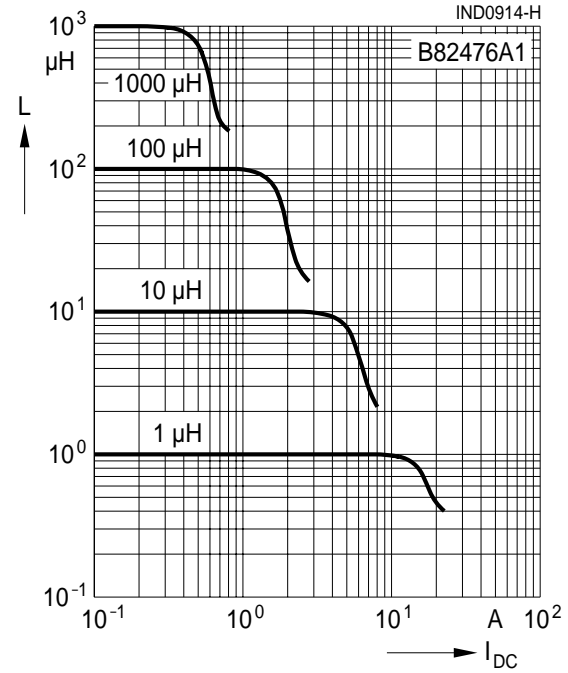
| $L_R$<br>$\mu\text{H}$ | Tolerance               | $f_L$<br>MHz | $I_R$<br>A | $I_{sat}$<br>A | $R_{max}$<br>$\Omega$ | Ordering code   |
|------------------------|-------------------------|--------------|------------|----------------|-----------------------|-----------------|
| 1.0                    | $\pm 20\% \triangleq M$ | 0.1          | 6.8        | 9.0            | 0.0080                | B82476A1102M000 |
| 1.5                    |                         | 0.1          | 6.4        | 8.0            | 0.0090                | B82476A1152M000 |
| 2.2                    |                         | 0.1          | 6.1        | 7.0            | 0.0105                | B82476A1222M000 |
| 3.3                    |                         | 0.1          | 5.4        | 6.4            | 0.0135                | B82476A1332M000 |
| 4.7                    |                         | 0.1          | 4.8        | 5.4            | 0.0165                | B82476A1472M000 |
| 6.8                    |                         | 0.1          | 4.4        | 4.6            | 0.0210                | B82476A1682M000 |
| 10                     |                         | 0.1          | 3.9        | 3.8            | 0.0270                | B82476A1103M000 |
| 15                     |                         | 0.1          | 3.1        | 3.0            | 0.0400                | B82476A1153M000 |
| 22                     |                         | 0.1          | 2.7        | 2.6            | 0.0500                | B82476A1223M000 |
| 33                     |                         | 0.1          | 2.1        | 2.0            | 0.0880                | B82476A1333M000 |
| 47                     |                         | 0.1          | 1.8        | 1.6            | 0.120                 | B82476A1473M000 |
| 68                     |                         | 0.1          | 1.5        | 1.4            | 0.160                 | B82476A1683M000 |
| 100                    |                         | 0.1          | 1.3        | 1.2            | 0.230                 | B82476A1104M000 |
| 150                    |                         | 0.1          | 1.0        | 1.0            | 0.330                 | B82476A1154M000 |
| 220                    |                         | 0.1          | 0.8        | 0.8            | 0.530                 | B82476A1224M000 |
| 330                    |                         | 0.1          | 0.6        | 0.6            | 0.810                 | B82476A1334M000 |
| 470                    |                         | 0.1          | 0.5        | 0.5            | 1.10                  | B82476A1474M000 |
| 680                    |                         | 0.1          | 0.4        | 0.4            | 1.60                  | B82476A1684M000 |
| 1000                   |                         | 0.1          | 0.3        | 0.3            | 2.15                  | B82476A1105M000 |

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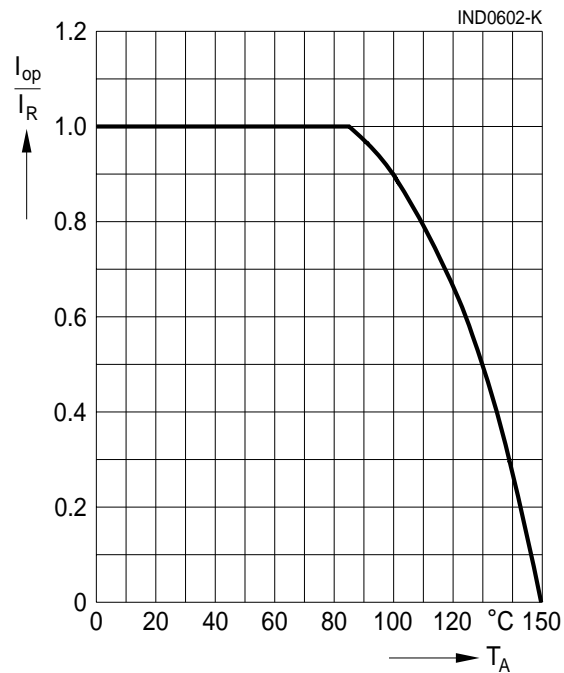
**Impedance  $|Z|$  versus frequency  $f$**   
 measured with impedance analyzer  
 Agilent 4294A, typical values at 20 °C



**Inductance  $L$  versus DC load current  $I_{DC}$**   
 measured with LCR meter Agilent 4275A,  
 typical values at 20 °C



**Current derating  $I_{op}/I_R$**   
**versus ambient temperature  $T_A$**   
 (rated temperature  $T_R = 85 °C$ )



## Cautions and warnings

- Please note the recommendations in our Inductors data book (latest edition) and in the data sheets.
  - Particular attention should be paid to the derating curves given there.
  - The soldering conditions should also be observed. Temperatures quoted in relation to wave soldering refer to the pin, not the housing.
- If the components are to be washed varnished it is necessary to check whether the washing varnish agent that is used has a negative effect on the wire insulation, any plastics that are used, or on glued joints. In particular, it is possible for washing varnish agent residues to have a negative effect in the long-term on wire insulation.
- The following points must be observed if the components are potted in customer applications:
  - Many potting materials shrink as they harden. They therefore exert a pressure on the plastic housing or core. This pressure can have a deleterious effect on electrical properties, and in extreme cases can damage the core or plastic housing mechanically.
  - It is necessary to check whether the potting material used attacks or destroys the wire insulation, plastics or glue.
  - The effect of the potting material can change the high-frequency behaviour of the components.
- Ferrites are sensitive to direct impact. This can cause the core material to flake, or lead to breakage of the core.
- Even for customer-specific products, conclusive validation of the component in the circuit can only be carried out by the customer.

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